X2 Frequency Multiplier

KBA-20+

50Ω Output 3200 to 4400 MHz



Generic photo used for illustration purposes only

CASE STYLE: SM2

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Input Power	200mW

Permanent damage may occur if any of these limits are exceeded.

Pin Connections

INPUT	10
OUTPUT	5
SAMPLE*	3
GROUND	1,2,4,6,7,8,9

* Sample port output power, -10 dBc typ.
Terminate in 50 ohms if not used.

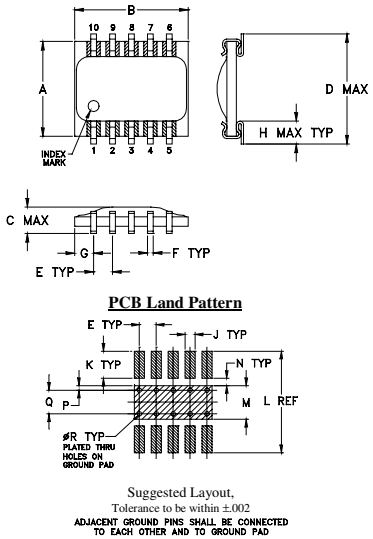
Features

- low conversion loss, 12 dB typ.
- low profile, 0.070" max.
- aqueous washable
- protected by US patent 5,534,830

Applications

- synthesizers
- local oscillators

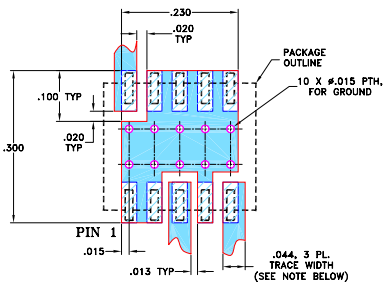
Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H	
.250	.300	.095	.290	.050	.015	.050	.060	
6.35	7.62	2.41	7.37	1.27	0.38	1.27	1.52	
J	K	L	M	N	P	Q	R	wt
.030	.080	.300	.100	.020	.015	.070	.014	grams
0.76	2.03	7.62	2.54	0.51	0.38	1.78	0.36	0.3

Demo Board MCL P/N: TB-99
Suggested PCB Layout (PL-066)



NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

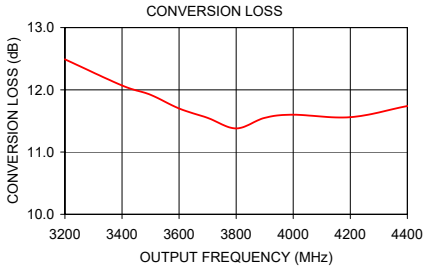
Electrical Specifications

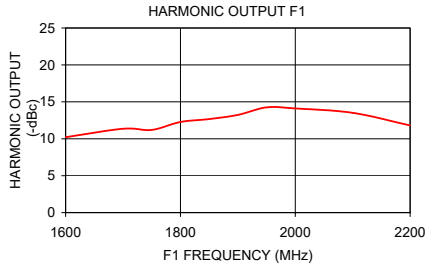
MULTIPLICATION FACTOR	FREQUENCY (MHz)		INPUT POWER (dBm)		CONVERSION LOSS (dB)		*HARMONIC OUTPUT (dBc)					
	F1	F2					F1		F3		F4	
	Input	Output	Min.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.
2	1600-2200	3200-4400	11	15	12	15.8	12	7	20	13	23	10

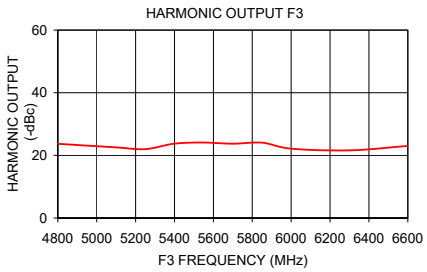
* Harmonics of input frequency below the power level of F2

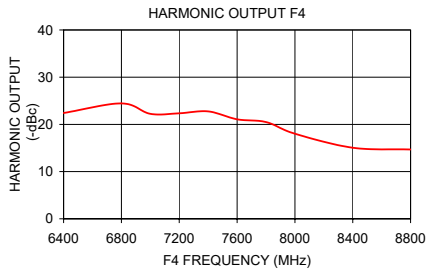
Typical Performance Data 25°C

Input Frequency (MHz)	Conversion Loss (dB) F2	Harmonic Output (-dBc) F1	F3	F4
1600.00	12.49	10.21	23.69	22.41
1700.00	12.07	11.36	22.56	24.44
1750.00	11.92	11.20	22.00	22.24
1800.00	11.70	12.27	23.75	22.35
1850.00	11.55	12.67	24.11	22.75
1900.00	11.38	13.23	23.71	21.07
1950.00	11.55	14.25	24.05	20.49
2000.00	11.60	14.11	22.15	18.03
2100.00	11.56	13.51	21.61	15.05
2200.00	11.74	11.80	23.02	14.68









Notes

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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